

## **RCRA FACILITY FACT SHEET**

### **HollyFrontier**

#### **Frontier Refining LLC.**

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### **FACILITY BACKGROUND**

Frontier Refining LLC. owns and operates a petroleum refinery located within the City of Cheyenne. The refinery operation encompasses approximately 117 acres. The refinery has been operating since 1934 under a number of owners and operators. Frontier Refining LLC. purchased the refinery in 1988. Currently, the refinery has a refining capacity of approximately 52,000 barrels of crude oil per day. Products produced at the refinery include gasoline, diesel, asphalt, liquid propane gas, Coker gas oil, petroleum coke and sulfur.

The Environmental Protection Agency (EPA) and Frontier Refining LLC. entered into an Administrative Order on Consent (AOC) on September 24, 1990 to conduct cleanup of the refinery.

Frontier Refining LLC. and the Department of Environmental Quality (DEQ) entered into a separate AOC which was effective on March 22, 1995. The purpose of the AOC was to:

- 1) Complete a Resource Conservation and Recovery Action (RCRA) Facility Investigation (RFI) to define the type and extent of contaminants present and which may be migrating on or from the refinery;
- 2) To plan and perform a Corrective Measures study to identify and evaluate remedial alternatives to prevent or mitigate contaminant releases from the refinery;
- 3) To install additional recovery systems, termed Initial Measures, to prevent off-site migration of contaminants; and
- 4) To perform other tasks necessary to protect human health and the environment.

In September 2006, Frontier and DEQ modified the AOC through a Joint Stipulation to Modify the AOC which included deadlines to implement specific corrective action activities such as boundary control, site stabilization, completion of a Draft Final RFI, and source control.

On July 25, 1989, EPA approved Frontier Refining LLC.'s closure plan to close two surface impoundments as a hazardous waste landfill (HWL). DEQ approved the permit to construct the HWL on May 1, 1990. The HWL contains Slop Oil Emulsion solids (K049), Heat Exchanger Bundle Cleaning Sludge (K050), API Separator Sludge (K051) and characteristic sludge from three former wastewater treatment ponds.

On June 12, 1997, DEQ requested that Frontier Refining LLC. submit a hazardous waste post-closure permit application for the HWL. Frontier submitted the application on January 9, 1998. A Final Post-Closure Permit was issued to Frontier on October 26, 2007.

## **ENVIRONMENTAL CONCERNS**

Hydrocarbon contaminations from refinery operations have been identified in the soils and groundwater in and around the refinery. Hydrocarbon contamination has migrated beyond the facility boundary in the southwest and southeast corners toward Crow Creek, and the northeast corner beyond Campstool Road.

Fifty-one (51) areas have been identified where past or present wastes were/are managed (referred to as Solid Waste Management Units, or SWMUs), and there are seventeen (17) areas of concern (AOCs) where environmental impacts may be present. The action Frontier Refining LLC. is taking to investigate and remediate the SWMUs and areas of concern are described below.

## **CORRECTIVE ACTION**

During the 1980's and early 1990's, Frontier Refining LLC. conducted groundwater studies to determine the site hydrogeology, groundwater characteristics, the extent of non-aqueous phase liquids (NAPLs) and dissolved hydrocarbons present under the refinery and to investigate possible releases to groundwater. As a result of these various studies, Frontier installed a monitoring well network and several recovery well systems to remove NAPLs and control groundwater gradients to prevent further migration of NAPLs and dissolved contaminants.

On October 8, 1998, DEQ approved, with modification, Frontier Refining LLC.'s RCRA RFI Work Plan dated November 1, 1994. Part of the modification to the RCRA RFI Work Plan required Frontier Refining LLC. to conduct a Source Characterization Study to develop a comprehensive list of constituents of concern by sampling the SWMUs, Dense Material Handling Areas and AOCs. DEQ approved the Source Characterization Study Work Plan on March 21, 2000. The Source Characterization Study Report was submitted to DEQ on December 14, 2001.

As part of the modification to the RCRA RFI Work Plan, DEQ and Frontier Refining LLC. agreed that while the refinery is operating it would not be feasible to attempt to remediate to final cleanup levels that would be protective for unrestricted uses of the property. Therefore, until the refinery ceases operations, Frontier Refining LLC. will conduct an "interim" corrective action that includes: implementation of interim and stabilization measures to address immediate environmental concerns or threats, such as potential releases of contamination to off-site areas; and off-site areas must be cleaned up to meet final cleanup levels that are protective for unrestricted use of the property, ecological receptors and groundwater must meet Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act; and on-site areas must be cleaned to levels that are protective for industrial use of the property and protection of groundwater.

Corrective Action related milestones, such as the RCRA RFI, Corrective Measures Study and Corrective Measures Implementation, are considered "interim" until such time as the refinery closes and final cleanup objectives can be implemented for the active on-site areas.

At about the same time that the RCRA RFI Work Plan was approved, DEQ and Frontier Refining LLC. agreed to development of a RCRA RFI Addendum Work Plan to investigate and characterize subsurface conditions at and beyond the refinery boundary and to evaluate the effectiveness of existing recovery well systems in controlling migration of contaminants. DEQ approved the RCRA RFI Addendum Work Plan on October 7, 1998. The Source Characterization Study for Solid and Hazardous Waste Management Units and Dense Materials Handling Areas was submitted December 14, 2001. The RCRA RFI Addendum Report was submitted to DEQ March 18, 2002.

In March 2000, Frontier Refining LLC. discovered NAPL in a well located south of the recovery wells located in the southwest corner of the refinery. Further investigation under the RCRA RFI Addendum Work Plan helped to define the extent and possible migration pathways of the NAPL. Frontier Refining LLC. took action to address this release, and as of the second quarter 2001, the NAPL thickness in the well has been reduced. In October 2007, a Draft Final RFI was submitted to DEQ. Comments were developed and a Revised Draft Final RFI was submitted in December 2008.

A number of corrective action activities have been completed and include the following:

- Boundary control through construction of a barrier wall along the west, south, and east boundaries of the facility
- Completion of a Phase I RFI
- Completion of a Phase II RFI which includes Risk Assessment Evaluations of Human Health and Ecological Receptors
- Corrective Measures Study
- On-site LNAPL Recovery Program
- Porter Draw Remediation Project
- Reconstruction activities for Surface Impoundment Nos. 1, 3, 4, and 5
- Reconstruction activities for Surface Impoundment No. 2 (Under EPA)
- Northwest Boundary Investigation
- Northeast Boundary Investigation
- Truck Loading Dock Investigation
- Site Stabilization activities
- On-Site Source Control Evaluations
- Continued Groundwater Monitoring
- Continued Post-Closure Care of the Hazardous Waste Landfill

### ENVIRONMENTAL INDICATORS

Environmental Indicators ("EI's") are an EPA measure used to determine if contamination is being mitigated at or from facilities. RCRA authorized States, such as Wyoming, make the

determination whether a facility has met the EI's, and that information is reported to EPA. There are two Environmental Indicators: 1) "Human Health Exposures under Control"; and 2) "Migration of Contaminated Groundwater under Control". The DEQ has determined that for the year 2005-2006 more information is necessary before a determination can be made on whether Human Health Exposures are "Under Control". The DEQ made a determination in 2000 that Migration of Contaminated Groundwater was "Not under Control". DEQ has completed the determination for the Human Health Exposure and Migration of Contaminated Groundwater under control and granted Frontier a positive determination for both EIs.

### **PATH FORWARD TO MEETING EPA'S 2020 CORRECTIVE ACTION GOALS**

WDEQ approved the Final RFI Report for all Solid Waste Management Units/Areas of Concern/Dense Material Handling Areas in 2011. A Corrective Measures Report was approved on August 13, 2013 to address areas needing further Corrective Action activities. Corrective Action activities for areas that are accessible (i.e., not in areas of current operating units) should be completed by 2016.

### **PUBLIC INTEREST**

Throughout the cleanup and permitting process, Frontier Refining LLC. will keep the public informed of corrective action progress at the facility. Frontier Refining LLC. has developed a public participation plan. The public will have an opportunity to comment on corrective action milestones such as the RCRA Facility Investigation, Corrective Measures Study and Corrective Measures Implementation, as well as permitting milestones such as DEQ's completeness review, draft permit and the final permit. All permit documents are also available at the information repository maintained at the Laramie County Library in Cheyenne.

### **FOR MORE INFORMATION**

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**Information Repository:**

Laramie County Library  
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